WHAT IS CLAIMED IS:

1. An isolated polynucleotide comprising a nucleotide sequence (a) encoding a polypeptide having the amino acid sequence set forth in FIG.9, or (b) encoding a polypeptide encoded by the rchd534-long cDNA contained in the clone pHL6TA1A, as deposited with the American Type Culture Collection as Accession No. 209615, or (c) which is the complement of (a) or (b).

2. An isolated polynucleotide comprising the nucleotide sequence (a) of the rchd534-long cDNA as shown in FIG.9, or (b) of the rchd534 cDNA insert contained in the clone pHL6TA1A, as deposited with the American Type Culture Collection as Accession No. 209615, or (c) which is the complement of (a).

3. An isolated polynucleotide that hybridizes under highly stringent conditions to the nucleotide sequence of Claim 1.

4. An isolated polynucleotide that encodes a protein member of the TGF-β signalling pathway, wherein the polynucleotide hybridizes under moderately stringent conditions to the nucleotide sequence of Claim 1.

5. An isolated polynucleotide comprising the nucleotide sequence (a) of the rchd534-long polypeptide coding region, which coding region is set forth from nucleotide residue number 155 to 494 of FIG.9, or (b) of the polypeptide coding region of the rchd534-long cDNA contained in the clone pHL6TA1A, as deposited with the American Type Culture Collection as Accession No. 209615, or (c) which is the complement of (a) or (b).

6. An isolated polynucleotide that hybridizes under highly stringent conditions to the nucleotide sequence of Claim 5.

7. An isolated polynucleotide that encodes a protein member of the TGF-β signalling pathway, wherein the polynucleotide hybridizes under moderately stringent conditions to the nucleotide sequence of Claim 5.

8. The isolated polynucleotide of Claims 1, 2, 3, 4, 5, 6, or 7 which is DNA.

9. The isolated polynucleotide of Claim 8 which is cDNA.

10. The isolated polynucleotide of Claim 8 which is genomic DNA.

11. The isolated polynucleotide of Claims 1, 2, 3, 4, 5, 6, or 7 which is RNA.

12. The isolated polynucleotide of Claims 1, 2, 3, 4, 5, 6, or 7 which further comprises a detectable label.

13. A vector containing the polynucleotide of Claims 1, 2, 3, 4, 5, 6, or 7.

14. An expression vector containing the polynucleotide of Claims 1, 2, 3, 4, 5, 6, or 7 in operative association with a nucleotide regulatory element that controls expression of the polynucleotide in a host cell.

15. A cultured genetically engineered host cell containing the polynucleotide of Claims 1, 2, 3, 4, 5, 6, or 7.

16. A cultured genetically engineered host cell containing the polynucleotide of Claims 1, 2, 3, 4, 5, 6, or 7 in operative association with a nucleotide regulatory element that controls expression of the polynucleotide in the host cell.

17. The genetically engineered host cell of Claim 16 which is prokaryotic.

18. The genetically engineered host cell of Claim 16 which is eukaryotic.

19. A method of producing an rchd534-long polypeptide, comprising the steps of:

(a) growing the genetically engineered host cell of Claim 17 in a culture; and

(b) collecting the polypeptide from the culture.

20. A method of producing an rchd534-long polypeptide, comprising the steps of:

(a) growing the genetically engineered host cell of Claim 18 in a culture; and

(b) collecting the polypeptide from the culture.

21. A method for identifying a substance for treating cardiovascular disease comprising assaying the ability of the substance to modulate the expression of the rchd534 gene, or the activity of the rchd534 or rchd534-long protein.

22. The method of Claim 21 in which the cardiovascular disease is atherosclerosis.

23. The method of Claim 21 in which the cardiovascular disease is ischemia/reperfusion.

24. The method of Claim 21 in which the cardiovascular disease is hypertension.

25. The method of Claim 21 in which the cardiovascular disease is restenosis.

26. The method of Claim 21 in which the modulation of the expression of said gene is assayed by:

(a) exposing a sample of cells to a test substance;

(b) assaying the expression of said gene in the sample of cells; and

(c) comparing the expression level of the gene in the sample exposed to the substance to the expression level of the gene in a control sample of cells, in which a difference between the expression level of the gene in the sample exposed to the substance and the control indicates the modulation of expression of the gene.

27. The method of Claim 26 in which the gene is down-regulated by the test substance.

28. The method of Claim 27 in which the substance is an oligonucleotide complementary to the 5′ region of the gene and blocks transcription via triple helix formation.

29. The method of Claim 27 in which the substance is an antisense or ribozyme molecule that blocks translation of the gene.

30. The method of Claim 26 in which the gene is up-regulated by the test substance.

31. The method of claim 21 in which the substance is a small organic or inorganic molecule that modulates the activity of the protein product by binding to the protein product.

32. The method of claim 21 in which the substance is an antibody that modulates the activity of the protein product by binding to the protein product.

33. An assay for identifying a substance that binds to the rchd534-long protein, comprising:

(a) contacting a protein or peptide containing an amino acid sequence corresponding to the binding site of the protein with a test substance, under conditions and for a time sufficient to permit binding and formation of a complex between the protein or peptide and the test substance, and

(b) detecting the formation of a complex, in which the ability of the test substance to bind to the protein is indicated by the presence of the test substance in the complex.

34. An assay for identifying a substance that inhibits the interaction between the rchd534-long protein and the fchd540 protein comprising:

(a) contacting a protein or peptide containing an amino acid sequence corresponding to the binding site of the rchd534-long protein with a protein or peptide containing an amino acid sequence corresponding to the binding site of the fchd540 protein, under conditions and for a time sufficient to permit binding and formation of a complex, in the presence of a test substance, and

(b) detecting the formation of a complex, in which the ability of a test substance to inhibit the interaction between the rchd534-long protein and fchd540 protein is indicated by a decrease in complex formation as compared to the amount of complex formed in the absence of the test substance.

35. An assay for identifying a substance that inhibits the interaction between two rchd534-long protein molecules comprising:

(a) contacting a first protein or peptide containing an amino acid sequence corresponding to the binding site of the rchd534-long protein with a second protein or peptide containing an amino acid sequence corresponding to the binding site of the rchd534-long protein, under conditions and for a time sufficient to permit binding and formation of a complex, in the presence of a test substance, and

(b) detecting the formation of a complex, in which the ability of a test substance to inhibit the interaction between two rchd534-long protein molecules is indicated by a decrease in complex formation as compared to the amount of complex formed in the absence of the test substance.

36. An assay for identifying a substance that inhibits the interaction between the rchd534-long protein and a protein member of the TGF-β signalling pathway comprising:

(a) contacting a protein or peptide containing an amino acid sequence corresponding to the binding site of the rchd534-long protein with a protein or peptide containing an amino acid sequence corresponding to the binding site of the protein member of the TGF-β signalling pathway, under conditions and for a time sufficient to permit binding and formation of a complex, in the presence of a test substance, and

(b) detecting the formation of a complex, in which the ability of a test substance to inhibit the interaction between the rchd534-long protein and the protein member of the TGF-β signalling pathway is indicated by a decrease in complex formation as compared to the amount of complex formed in the absence of the test substance.

37. The assay of Claim 36 wherein the protein member of the TGF-β signalling pathway is MADR1, MADR2, DPC4, activated TβR1, activated ActR1b, or activated ALK6.

38. An assay for identifying a substance that inhibits the interaction between the fchd540 protein and a protein member of the TGF-β signalling pathway comprising:

(a) contacting a protein or peptide containing an amino acid sequence corresponding to the binding site of the fchd540 protein with a protein or peptide containing an amino acid sequence corresponding to the binding site of the protein member of the TGF-β signalling pathway, under conditions and for a time sufficient to permit binding and

formation of a complex, in the presence of a test substance, and

(b) detecting the formation of a complex, in which the ability of the test substance to inhibit the interaction between the fchd540 protein and the protein member of the TGF-β signalling pathway is indicated by a decrease in complex formation as compared to the amount of complex formed in the absence of the test substance.

39. The assay of Claim 38 wherein the protein member of the TGF-β signalling pathway is MADR1, MADR2, DPC4, activated TβR1, activated ALK6, activated TSR1, activated ALK3, or activated ActR1β.

40. A method for treating cardiovascular disease comprising administering a compound that inhibits the interaction between the rchd534-long protein and the fchd540 protein.

41. A method for treating cardiovascular disease comprising administering a compound that inhibits the interaction between two rchd534-long protein molecules.

42. A method for treating cardiovascular disease comprising administering a compound that inhibits the interaction between the rchd534-long protein and a protein member of the TGF-β signalling pathway.

43. The method of Claim 42 wherein the protein member of the TGF-β signalling pathway is MADR1, MADR2, DPC4, activated TβR1, activated ActR1b, or activated ALK6.

44. A method for treating cardiovascular disease comprising administering a compound that inhibits the interaction between the fchd540 protein and a protein member of the TGF-β signalling pathway.

45. The method of Claim 44 wherein the protein member of the TGF-β signalling pathway is MADR1, MADR2, DPC4, activated TβR1, activated ALK6, activated TSR1, activated ALK3, or activated ActR1β.

46. A method for identifying a substance that enhances the TGF-β signalling response comprising:

(a) contacting a genetically engineered cell with a test substance, said cell comprising 1) a reporter gene in operative association with an inducible TGF-β regulatory element; 2) a recombinant gene encoding the rchd534-long protein or a recombinant gene encoding the fchd540 protein; and 3) a recombinant gene encoding the MADR1 protein or a recombinant gene encoding the MADR2 protein; and

(b) detecting expression of said reporter gene in which ability of the test substance to enhance the TGF-β signalling response is indicated by an increase in expression of the reporter gene as compared to the amount of expression in the absence of the test substance.

47. A method for identifying a substance for treating fibroproliferative disease or oncogenic related disorders comprising assaying the ability of the substance to modulate expression of, or the activity of the encoded protein product of, the rchd534-long spliceoform or the fchd540 gene.

48. The method of Claim 47 in which the fibroproliferative disease is diabetic retinopathy.

49. The method of Claim 47 in which the oncogenic related disorder is a tumor growth.

50. The method of Claim 47 in which the oncogenic related disorder is angiogenesis.

51. A method for treating fibroproliferative disease or oncogenic related disorders comprising administering a

compound that inhibits the interaction between the rchd534-long protein and a protein member of the TGF-β signalling pathway.

52. A method for treating fibroproliferative disease or compound that inhibits the interaction between the rchd534-long protein and the fchd540 protein.